

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of:
Clifford F. Biddulph

Application No.: 10/774,559

Filed: February 9, 2004

Confirmation No. 8972

Examiner: Lois L. Zheng

Docket No.: PVOZ 200015US01

Title: BLACK TRIVALENT CHROMATE CONVERSION COATING

REPLY BRIEF

Appeal from Group 1793

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I. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL – PAGES 3-11 OF THE EXAMINER'S ANSWER (37 C.F.R. §41.37(C)(1)(VI))

The Examiner's Answer asserts arguments to which Appellant responds below. In all other respects, the information required by 37 C.F.R. §41.37 is provided in the Appeal Brief filed November 8, 2010 by Appellant(s), and Appellant(s) maintain(s) the arguments set forth therein.

II. Argument (37 C.F.R. § 41.37(c)(1)(vii))

A. Claims 1-6, 8-9, and 19-23 are Non-Obvious Over WO'902

By means of brief review, the present claims are directed to an aqueous acidic black chromate conversion coating solution for use on zinc and zinc alloy comprising trivalent chromium ions in a concentration of about 0.02M to about 0.2M, phosphorous anions; anions selected from the group of sulfate ions, nitrate ions, and combinations thereof; at least one transition metal or metalloid selected from groups III, IVa, Va, or VIII; and an organic chelate selected from the group consisting of carboxylic acids, polycarboxylic acids, and combinations thereof. A concentration of the sulfate ions when present comprises about 0.02 to about 0.5M and a concentration of the nitrate ions when present comprise about 0.06 to about 0.6M. The organic chelate is present in a concentration of from 0.02 to about 0.3M, and the aqueous acidic black chromate conversion coating solution produces a single layer black chromate conversion coating.

The Examiner's Answer argues that WO'902 teaches the claimed single layer black chromate conversion coating, since what is claimed is an aqueous acidic solution that is capable of producing a single black chromium coating. The Examiner further submits that Appellant only points out differences between the coating process of WO'902, although the scope of the claim is directed to a coating solution rather than a coating process. Although the process of WO'902 contains two process steps, the Examiner submits that this does not mean that the Cr(III) containing coating solution used in the first coating step of WO'902 is incapable of producing a black conversion coating layer.

Appellant respectfully submits that the claims are directed to an aqueous acidic black chromate conversion coating solution for use on zinc and zinc alloy **that produces** a single layer black chromate conversion coating, not a solution that is **capable** of producing a single black chromium coating as the Examiner suggests. Therefore, in contrast to the Examiner's position,

the coating process of WO'902 is relevant, since it necessarily **produces** the two layered black coating, as opposed to the single layered coating presently claimed. The first paragraph of WO'902 specifically recites an anticorrosive black coating formed by **two layers** on a zinc alloy and a procedure for making this anticorrosive coating. WO'902 states, "[t]he anticorrosive coating **produced** on the alloy of zinc consists of superposition of two individual coatings..." (Emphasis added). Therefore, clearly WO'902 fails to teach a coating solution that produces a single layer black chromate conversion coating as presently claimed. The fact that this conclusion is reached through analysis of the disclosed process does not make that teaching less pertinent.

In response to Appellant's position that the second layer of WO'902 contains the black pigments along with metallic oxide anticorrosives and organic polymers, which provides the advantages over previous SiO₂ solutions or corrosion protection, the Examiner submits that the pigment used in the second process step of WO'902 is considered an optional component, which means that the coating process of WO'902 is capable of forming a black coating layer without the additional black pigment. Appellant respectfully disagrees and submits that the fourth paragraph of the Official Translation of WO'902 recites that the invention is directed to obtaining a black anticorrosive coating on a zinc alloy, which is **present** after heating for one hour at 120°C or 150°C or in certain cases more (thermal shock), and this step occurs in each of the examples **after** application of the aqueous suspension. The Examiner cites page 5, 1st and 2nd paragraphs, which describe Example 4, to support the assertion that the black pigment in the second process step is optional. However, in Example 4, after the steel panels are treated with the Cr³⁺ solution, the panels are immersed in the aqueous suspension of Example 1. The aqueous suspension of Example 1 is explicitly taught as including 50g/L of carbon black at 20% **to get the black color**. There is no "optionally" language anywhere in Example 4. Accordingly, the Examiner's request for factual evidence demonstrating that the Cr(III) first solution is not capable of producing a black coating is unnecessary, since WO'902 explicitly teaches that the black color results from the aqueous suspension containing a black pigment, which produces a second layer, in direct contrast from that presently claimed.

Appellant submits that based on the explicit teaching of a two-step coating process in WO'902, the Examiner's assertion that one skilled in the art would disregard this teaching and instead utilize only the first stage illustrates a blatant disregard of the prior art's explicit teaching,

wherein the Examiner is choosing without basis particular teachings of the document while ignoring other explicit requirements, which is improper. In short, WO'902 does not teach a solution producing a single layer having a black coating, but rather a two layer approach including a afirst layer with certain overlapping chemical constituents, **and** a second layer containing a black pigment. This solution does not encompass or suggest Appellant's simpler and more efficient claimed invention. Furthermore, the fact that the Examiner cannot point to any teaching or suggestion in WO'902 that would lead one skilled in the art to proactively eliminate the very step in WO'902 that teaches production of a black uniform color (see page 3, under the heading, Day Two, of the translation) rather than retroactively doing so in light of the present disclosure, indicates that the Examiner is improperly using hindsight, which is an **improper** basis for an obviousness rejection. using Appellant's disclosure as a roadmap for laying out this rejection. As stated previously, "it is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious..." *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992).

In response to Appellant's argument that a person skilled in the art would not adjust the sulfate and/or nitrate concentration in WO'902, the Examiner submits that the pH of the coating bath affects the coating process and the coating quality. Therefore, the Examiner argues, controlling the pH of the solution by adding sulfuric and/or nitric acids as taught by WO'902 is a mechanism used to control the coating quality and coating properties. Appellant submits that this argument is circular and fails to provide any actual support for modifying the sulfate and/or nitrate concentration to achieve a pH other than the range disclosed in WO'902. WO'902 discloses a pH range between 1 and 4 and preferably between 1 and 3, and teaches that this range is affected by materials including nitric acid and sulfuric acid. The present claims disclose an optimal pH of between 0.5 and 3.5, and more preferably between 1.2 and 2.5, which is achieved through a sulfate concentration, when present, of about 0.02 to about 0.5M and a nitrate concentration, when present, of about 0.06 to about 0.6M. The Examiner argues that one skilled in the art would have varied the amounts of sulfate and nitrate in order to achieve and maintain the desired pH level; however, the Examiner has failed to provide any explanation as to why a person skilled in the art would vary a pH that is already determined to be optimal; i.e., preferably between 1 and 3, as disclosed in WO'902. Moreover, Appellant's solution is directed to a single

layer black coating. WO'902 is not, and accordingly the motivation to "optimize" WO'902 is lacking. Accordingly, the Examiner's assertion that one skilled in the art would vary concentrations to those claimed is without merit, since WO'902 already discloses an optimal pH and has no motivation to further alter the concentrations.

Moreover, in response to Appellant's position that the combination of Oshima and WO'902 as proposed would not produce a single-layered coating as presently claimed, the Examiner submits that WO'902 teaches adding various black color contributing components such as phosphate, Fe, Co, and Ni to a trivalent chromium solution to promote the formation of a black coating. Appellant submits, however, that this reasoning is incomplete, since both references teach a **two-layered coating**, wherein the color aspects are included in the second layer. Therefore, if one skilled in the art desired the film of Oshima to include a black color, certainly the skilled artisan would adhere to the explicit teachings of both Oshima and WO'902 and include this color in the top coat. That WO'902 includes various black color contributing components, as argued by the Examiner, does not change the fact that WO'902 unambiguously teaches that "to give the black color you introduce into the suspension a black pigment at 50g/L of dispersion of carbon black at 20%." (See Example 1).

In light of at least the above, it is clear that the teachings of the cited references, individually or in combination, do not teach or suggest the present invention as taught in independent claims 1, (along with claims 2-6 and 8-9 that depend therefrom) 19, and 20 (along with claims 21-23 that depend therefrom). Accordingly, withdrawal of the rejection and allowance of the claims is earnestly solicited.

CONCLUSION

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 1-6, 8-9, and 19-23 are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejections of the claims.

February 22, 2011

Respectfully submitted,



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